

REPORT OF  
LIVER FLUKE SITUATION  
IN COLORADO - BY THE  
BUREAU OF ANIMAL INDUSTRY  
U. S. DEPARTMENT OF AGRICULTURE  
ZOOLOGICAL DIVISION  
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## Report of The Liver Fluke Situation in Colorado

The liver fluke situation in Colorado was investigated by personal contact with Veterinarians, County Agents, City and Federal Officials, Meat Inspection Departments, City, State and Federal and Packing house Managers, who do not have inspectors. The owners of sheep and cattle were interviewed and their places investigated whenever possible.

### Mesa County.

Doctors Drew and Paige, Practitioners of Grand Junction, who have the meat inspection for that city, reported that a large percentage of the cattle from the following territories are infested with liver flukes; namely: DeBeque, Mesa, Collbran and Plateau City. They also feel that the Grand Mesa Country north and east of Grand Junction is also heavily infested. The latter is a high plateau summer cattle range covered with marshes and lakes. The local butcher at Mesa stated that a good beef liver was very uncommon. We gathered snails and interviewed stock owners around the above mentioned places. This is strictly a cattle country and no sheep are raised therein.

### Delta County.

Doctor Zenor, Veterinarian of Delta, reports fluke infested cattle west of Delta along the river bottoms. Cedaredge, north of Delta is also reported flukey. The areas in Delta County are small and would be easily cleaned of this infestation.

### Montrose County.

Dr. Craig, Veterinarian at Montrose, reports fluke infested cattle on the west river bottoms at Montrose. Like Delta County, this section is small but heavily infested with *Lymnea* snails but could easily be treated to kill the snails. Very few sheep

are raised in this section of the country. East of Montrose at Cimeron, which is a sheep country situated in a small wet valley, the ranchers have been having heavy yearly losses. One owner stated that he has been loosing sheep from flukes for the past nine years. His place is very marshy and Lymnea snails were plentiful in spots at the time I visited his place. The owner stated that later in the season the place was covered with this type of snail, (Fossaria Modicella). I autopsied one ewe and found the bile ducts of the liver contained dead flukes and calcified materials. No live flukes were found. This ewe was also heavily infested with Ostertagia stomach worms. This owner treats his home band yearly with carbon tetrachloride but does not treat the range band. The elevation ranges about 7,132<sup>feet</sup> at the ranch. The owner will drain the home place but is inclined to believe that the summer range is also infested up to 10,000 feet elevation. (The latter is questionable) Other ranches in the valley are similarly situated.

#### Montezuma County.

Have one report from Mancos of 39 infested sheep out of 52 head killed at Denver. This country is quite dry and the probabilities are that they come from some other point.

#### La Plata County.

Doctor Robenstein of the U. S. B. A. I., has autopsied sheep and cattle in the southeast corner of this county and found liver flukes at Bayfield and LaBoca and states that that section of the County is very swampy. Did not investigate same on this trip.

Archuleta County.

We have one report of flukes in this county. Joe Hirsch of Pagosa Springs has been having losses from flukes in sheep and is using carbon tetrachloride yearly.

Gunnison County.

I was unable to obtain any direct information on the liver fluke situation in this county as they do not have a County Agent or Veterinarian. It is strictly a cattle country with no known death losses from liver flukes. East and north of Gunnison the country is wet and swampy and heavily infested with Lymnea snails. Wild hay appears to be the main hay crop. The fields were flooded with water. They were apparently using flood and seepage method, which is ideal for flukes. The elevation is 7,683 feet. Most of the cattle from this section go to the feed lots in eastern or northeastern Colorado and even further east; therefore, the history is lost and we have no definite reports from this section.

San Luis Valley.

This valley is an ideal fluke territory comprising approximately 6,000 sq. miles and is divided into 5 counties. Cattle and sheep are raised throughout the valley. The ranchers obtain the water for irrigation purposes from the surrounding mountains and depend upon flooding and sub-irrigation methods; consequently, marshy wet land is very abundant. Artesian wells also are abundant, from which there will be acres of constantly wet ideal snail breeding grounds. The elevation in this valley ranges from 7,500 feet to 7,880 feet. The higher elevation, from reports of owners and Veterinarians in the valley, is heaviest infested. This valley has proposed a drainage system for the east-

ern end of the valley and submitted it to the Senate, which if completed, will eliminate approximately 50% of the fluke infested area. The ranchers in this valley have learned, in most cases, to keep their sheep off the low areas and on the high mountains in the summer or get out of the sheep business. As the cattle men do not take a loss they are hard to convince that the liver fluke is doing them any serious damage. Those areas involved in San Luis Valley are Saquache and Moffat in Saquache County; Del Norte, Monta Vista and Center in Rio Grande County; Alamosa and Hooper in Alamosa County; La Jara and Manassa in Conejos County and San Luis in Costilla County. Several ranches were visited and surrounding territories of each of the above points and were found to be typical fluke infested areas, and in some instances the owners stated they used to be in the sheep business but have lost them from liver flukes. They have one meat inspection establishment in the valley at Alamosa, and Dr. Berthelson, Inspector, stated that 30% of all beef livers received at the plant are fluke infested. This valley would be very difficult to control due to the abundance of water, type of soil, difficulty of drainage and prevalence of cattle with little death loss, if any, and very few sheep where death usually occurs. Most of the ranchers realize the economic importance of liver flukes in cattle as well as in sheep but are not willing, or do not have the money to spend to eliminate the snails from their ranches.

#### Huerfano County.

We have one report from this county; Gollmer Bros. at La Veta. The wet areas are small and isolated and would be easily cleaned of snails by using copper sulphate.

Custer County.

We have two reports from this county; at West Cliff. I did not personally investigate this section but Dr. Stout, Extension Veterinarian for Colorado, has investigated same and feels that it is a flukey area.

Pueblo County.

Has been reported as a flukey territory but from observation and talking with local Veterinarians, any flukey cattle in this section would probably be shipped in and fed there and not originating at this point. The reports received from Boulder, Larimer and Weld Counties are found to be feeder cattle originating in San Luis or Gunnison Vallies and not from these counties named. The farms and feed lots through this section are well drained and the fluke situation would not be serious and could be controlled in case we did obtain a few isolated areas. The Veterinarians at the college at Fort Collins and the Practitioners through this section have never found a <sup>local</sup> fluke infested animal in this territory. North of Fort Collins, on the Forest Reserve, there are a few isolated spots where we found some of the Lymnea snails but they could be drained very easily and the snails eliminated. We also have reports from Morgan County at Fort Morgan; Elbert County at Agate; Kit Carson County at Stratton. I did not investigate these three counties as both Federal and State Veterinarians of Colorado deemed it unnecessary, stating that they were feeder cattle. We have one area reported in Park County at Jefferson and one in Eagle County at Basalt. These two areas were not investigated but officials stated that they

were sure of them being infested areas.

Jackson County.

At Walden - what is known as North Park Country, is an ideal fluke area. The pastures are wet and swampy. Snails were hard to find at this season of the year but owners report that they are plentiful later in the season. Butchers claim that livers in cattle are usually bad. (Dont know what they mean, whether flukey or absessed). We autopsied one ewe which was heavily infested with *Haemonchus contortus*, stomach worms. The liver surface of this sheep showed evidence of fluke invasion but no adult or immature fluke were found. Dr. Robenstein will keep a check and report to us on this flock and others in the valley, this fall.

Routt County.

At Steam Boat Springs, the City Meat Inspector states that he has never condemned a liver for liver flukes. There is considerable swampy area in this valley and should be some fluke invasion there.

Moffat County.

There are a few isolated areas out of Craig where they have wet, sloughy pastures and snails are plentiful. Mr. C.C. Dolan lost 40 head of sheep out of 360 during the late fall and winter. His band was emaciated and in general an unthrifty band. The history indicated immature and mature fluke loss. We autopsied one ewe. There were no flukes present in the liver but the scars on the serous membrane indicated to me that the ewe had been infested in the past year with liver flukes. Snails were not very plentiful but what were there were *Lymnea* type and found in swampy country. Dr. Robenstein is also going to check on this area and report any

fluke infestation that he finds, to this office.

The above report is merely a preliminary investigation and I am of the opinion that Colorado has a number of other infested areas and if a thorough check on Post-mortem could be made, we would find the State very heavily infested - probably as much so as the State of Utah, where a thorough investigation has been made.

Attended the meeting of the Colorado Veterinarians at Fort Collins, on May 24th and 25th - gave a paper on the liver fluke situation and control of liver flukes in Colorado. The attendants were enthusiastic about this work and asked many questions pertaining to the Liver Fluke Problems.

It is with high regard and respect that I wish to thank all the Practicing Veterinarians, State Veterinarians, College Veterinarians and Federal Veterinarians for their information and interest in this problem.

Dr. Cow, State Veterinarian and Dr. J. O. Wilson, Federal Inspector in charge and Dr. E. N. Stout, Extension Veterinarian, all have expressed their cooperation in the future on this problem.

Respectfully submitted,

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